

**Fisheries Information on the Banded Rudderfish, Almaco Jack, and  
Lesser Amberjack in the Gulf of Mexico through 1995.**

by

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## **Introduction**

Amberjacks, Seriola species, contribute significantly to important recreational and commercial fisheries along the entire southeastern United States (Berry and Burch 1978, Burch 1979). This report is concerned with the banded rudderfish (S. zonata), the almaco jack (S. rivoliana), and the lesser amberjack (S. fasciata) fisheries in the Gulf of Mexico. These species are important components of the overall reef fish fisheries however, they comprise a small percentage of the total landings in comparison to the greater amberjack. Recently, recreational and charterboat fishermen in Florida and Alabama have made numerous complaints about a perceived decline in the abundance of the overall amberjack fishery including these minor species. This perceived change in abundance however, has not been observed in the commercial fisheries. This problem prompted the Florida Marine Fisheries Commission to hold a series of workshops and public hearing in the summer of 1996 throughout the state devoted to assessing the public opinion as to the status of all four species of amberjacks (Williams 1996). The Gulf of Mexico and the South Atlantic Fishery Management Councils requested that information on the current status of the greater amberjack be updated and have proposed changes in fishery regulations on the minor species intended to provide additional protection for greater amberjack (FMP Amendment 12, proposed rule).

## **Objectives**

Fisheries statistics presented by Parrack (1993) for the lesser amberjack, the almaco jack, and the banded rudder fish are updated and data are presented through 1995. Updated information for 1) reported commercial landings, 2) summary catch per unit of effort statistics from the recreational charterboat, private vessel, headboat fisheries, and commercial vessels reporting by logbooks, 3) summary data on observed sizes and individual weight from the commercial and recreational fisheries, and 4) updated results of updated bag limit analyses are presented.

## **Available Data**

The data sources for the analyses conducted in this report are identical to those used in the amberjack study of Parrack (1993). Commercial landings were obtained from the National Marine Fisheries Service (NMFS), Southeast Fisheries Science Center (SEFSC), Research Management Division (RMD) and included data obtained from port agents, from routine reports by the Florida Department of Environmental Protection (FDEP), and logbook reports from commercial vessels landing reeffish. Recreational harvest estimates were obtained from the National Marine Recreational Fisheries Survey (MRFSS), the NMFS Beaufort laboratory, and the Texas Parks and Wildlife Department (TPWD). Abundance information was extracted from intercepts of catch per trip, catch per angler, catch per boat, and/or catch per unit of time fished from recreational and commercial trips of the above sources (i.e., MRFSS, NMFS Headboat Survey, TPWD, NMFS commercial Logbooks). Individual measures of length and weight were taken from several databases including: MRFSS, NMFS headboat, TPWD, and the NMFS Trip Interview Program (TIP). In all analyses the resolution retained in the data was that of the earlier amberjack analyses and is completely described in Parrack (1993).

## **Results**

### *Commercial Landings*

Total landings of the minor amberjack species reported by commercial fishermen completing logbooks since 1992 averaged 111,786 pounds per year (range 103,845 to 171,844 lbs, Tables 1a,b). This compares to average Atlantic catches of 118,920 lbs/year (McClellan and Cummings 1996). Reporting became mandatory during 1992, therefore the 1991 and 1992 values should probably be considered as partial landings of these species. In addition, landings for 1996 are also incomplete. Landings of the minor species were made most often in Florida and in Louisiana (Figure 1a). Banded rudderfish were landed more frequently in Florida than in any other state but the total annual landings were always less than either the almaco jack or the lesser amberjack (Figure 1b). The almaco jack and the lesser amberjack were landed

mainly in Florida although large quantities were landed in Louisiana and Mississippi also.

Total landings of the minor amberjacks by commercial vessels showed no strong trend between 1993-1995. The increase in lesser amberjack landings between 1992 and 1993 probably represents partial reporting (Figure 2). Handlines, longlines, fish traps, troll lines, and spearguns were used to catch the minor amberjack species in the Gulf of Mexico. The largest percentage of the landings always came from handlines. This gear dominated in the Gulf of Mexico as it did in the Atlantic (Table 2, Figure 3, McClellan and Cummings 1996).

#### *Recreational Harvest*

Total estimated recreational catch of lesser amberjack by private vessels, charterboats, and headboats ranged from 270 fish (1990) to 119,538 fish (1989) per year between 1982 and 1995 (Table 3a). Almaco jack were caught more frequently by all types of recreational anglers than lesser amberjack. Estimated total catch of almaco jack ranged from 0 fish (1983) to 39,767 fish (1993) per year between 1981 and 1995 (Table 3b). Estimates of recreational catches of banded rudderfish were very variable, ranging from 0 fish (1984-1986) to 213,021 fish (1993) per year (Table 3c). Catches of unidentified amberjacks also occurred in sometimes large quantities (Table 3d,e). Banded rudderfish were caught in recent years mostly by headboats. Estimates of variance were largest for lesser ambrjack. Annual estimtes of total recreational catch are shown in Figure 3.

Nearly all of the recreational catch of lesser amberjack occurred in Florida or Alabama (Table 4a). Alamco jack and banded rudderfish were nearly always caught in Florida with minor catches being made in Alabama, Teaxas, and in Louisiana in recent years (Table 4b,c). The Florida recreational catch of unidentified jacks (Table 4d) occured in large quantities.

#### *Biostatistical Sampling*

The availability of length and weight samples recorded for the minor amberjack species in the Gulf of Mexico is given for the commercial and recreational fisheries in Tables 5a-c and

6a-c. These tables indicate that the level of recreational sampling of lesser amberjack remained about the same as observed at the time of the 1993 assessment, while that observed for commercial sampling increased slightly. Length sampling of almaco jack increased slightly in the headboat and commercial reeffish fishery since the 1993 assessment. Recreational sampling of banded rudderfish remained variable while an increase in commercial sampling was observed. Whether or not the frequency of sampling by species is indicative of abundance levels between species is not known. Headboats were the most often sampled recreational fishery for all three minor amberjack species.

### Commercial Trends

Sample average length of lesser amberjack landed by commercial vessels ranged from 34 cm to 67 cm between 1990 and 1995 with no strong trend over the period (Table 6a, Figure 4). Lesser amberjack caught by commercial vessels in the Atlantic were larger than those observed in the Gulf of Mexico. The value of trend information regarding size of lesser amberjack from the commercial fishery is minimized due to sample sizes of 10 or fewer fish except during 1994.

Sample average length of almaco jack landed by commercial vessels varied from 30 cm to 77 cm between 1983 and 1995 without trend (Table 6b, Figure 4). Almaco jack caught in the Atlantic Ocean tended to be somewhat larger than those in the Gulf of Mexico.

Average length of banded rudderfish from commercial vessels ranged from 43 cm to 75 between 1991 and 1995. As with almaco jack, banded rudder fish caught in the Atlantic by commercial vessels were somewhat larger (Table 6c, Figure 4).

### Recreational Trends

As observed in the Parrack (1993) analysis, lesser amberjack were more often measured from headboat catches. Although sample sizes are extremely low, sample average lengths have tended to decline since 1974 from 64 cm to 45 cm. In addition, the few samples of

average weight obtained suggest a decline in average weight over the same time period (Table 5a, Figure 5). Special effort sampling of this species would be required before any credence could be put into this trend. Samples of lesser amberjack from the other recreational private and charter boat fisheries are almost non-existent in the database. Average length of lesser amberjack caught by recreational fishermen increased slightly since the 1993 analysis, ranging from 24 cm to 45 cm between 1982 and 1993 (Table 6a).

Headboat catches of almaco jack were sampled for size more frequently than other recreational catches with large increases observed in 1994. Sample average length varied from 36 cm to 46 cm between 1980 and 1995 without trend (Table 6b, Figure 4). Sample average weight ranged from 2 lbs to 5 lbs over the same period (Figure 5). Average lengths caught by recreational fishermen declined slightly since 1993.

Very few banded rudderfish caught by recreational anglers other than headboat fishermen were sampled in the Gulf of Mexico since 1986. Average length remained about the same as for the 1993 assessment. Sample average length of headboat catches varied from 34 cm to 43 cm without trend (Table 6c, Figure 4). Nearly all length samples were from the headboat fishery. The MRFSS data are insufficient to draw conclusions on length. Banded rudder fish caught recreationally were much smaller than those from the Atlantic Ocean group (McClellan and Cummings 1996).

Frequency distributions of the minor species of amberjack where sample sizes are greater than or equal to 25 are shown in Figures 6a-c.

#### *Catch Per Unit of Effort (CPUE)*

#### Commercial Vessels or Commercial Logbooks

The average pounds reported per trip landed for the three minor species of amberjacks is

given in Table 7. Lesser amberjack commercial CPUE varied from 101 lbs per trip to 201 lbs per trip between 1994 and 1996 (Table 7a). The logbook data indicate that although handlines account for the majority of landings that lesser amberjack were also caught on traps and longlines (Figure 7a).

Commercial CPUE of almaco jack ranged from 102 lbs per trip to 293 lbs per trip from 1992-1995 (Table 7b). Handlines in 1995 accounted for the largest percentage of gear used, though longlines and handlines were also important (Figure 7b).

Banded rudderfish commercial CPUE ranged from 79 lbs./trip to 236 lbs./trip from 1992 - 1995 (Table 7c). Handlines were used almost exclusively to capture this species (Figure 7c).

### Recreational Fishing Trips

Recreational CPUE information is presented in Table 8 for the minor amberjack species for the MRFSS and the NMFS headboat dataseries. The NMFS headboat survey provided the majority of observations of fishing success to evaluate trends in recreational abundance. The headboat samples suggest that recreational CPUE of lesser amberjack and almaco jack varied without trend between 1986 and 1994. Headboat samples suggest that CPUE of banded rudderfish increased from 0.2 fish per angler to 1.1 between 1987 and 1994. Observations from the MRFSS and the TPWD data series were too sparse to draw conclusions regarding CPUE trends, especially in recent years.

### *Recreational Bag Limit Analyses*

The 1995 observations of recreational CPUE were used in the bag limit analyses. The MRFSS survey data were insufficient to determine effects of bag limit restrictions on the private angler and charterboat fisheries for all species. Only the NMFS headboat dataseries could be used and data were sufficient enough for only almaco jack. Those results suggest that a one fish bag limit would result in a reduction of catch of about 2% for almaco jack caught by headboat anglers in the Atlantic Ocean (Table 9).

## **Summary**

This report has documented the importance of these minor species of amberjacks to the overall Gulf of Mexico commercial reefish fishery. Increased emphasis on sampling of these species should be directed towards this fishery in Florida, Louisiana, Mississippi, and Texas, in order of priority.

Because of the frequency in which these minor amberjack species are encountered in all of the recreational and commercial fisheries in the Gulf of Mexico, unless devoted efforts are made to obtain samples probably only the headboat fishery database should be used to obtain trend information on CPUE and size. The 28 inch (71 cm) minimum size limit as proposed by the management councils for the lesser amberjack and almaco jack should be considered carefully because length frequency analysis suggests these two species rarely attain that size. Lesser amberjack and almaco jack are caught recreationally more by the charterboat and the private angler fisheries than the headboats, so sampling should be directed towards these fisheries. Banded rudderfish are a popular and frequent fish of headboat anglers also. Additional efforts should be made to obtain more size samples. Finally, the MRFSS data indicates very large (greater than 200,000) unidentified jacks are caught annually in the Gulf of Mexico. The NMFS and the Councils should request that MRFSS samplers be retrained in identification of all the Seriola species caught in the southeast U. S.

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**Table 1. Pounds landed by state of the minor amberjack species from Gulf of Mexico group as reported by commercial logbooks. N = number of trips.**

a.

<b>Lesser amberjack</b>														
Year	Alabama		Florida (east)		Florida (west)		Louisiana		Mississippi		Texas		Other	
	n	lbs	n	lbs	n	lbs	n	lbs	n	lbs	n	lbs	n	lbs
91														
92	2.0	170.7	1.0	53.0	51.0	8918.0	49.0	1590.0			2.0	54.1	4.0	191.3
93	1.0	21.0			287.0	24350.0	90.0	21873.0	2.0	39.5	12.0	675.8	1.0	45.8
94	1.0	27.0			391.0	42424.0	143.0	34269.0	2.0	127.9	14.0	1605.0		
95					357.0	36486.0	129.0	30881.0	1.0	63.4	13.0	1615.0		
96					159.0	15220.0	44.0	26899.0			9.0	527.8		

<b>Almaco jack</b>														
Year	Alabama		Florida (east)		Florida (west)		Louisiana		Mississippi		Texas		Other	
	n	lbs	n	lbs	n	lbs	n	lbs	n	lbs	n	lbs	n	lbs
91					2.0	24.9	10.0	3757.0					1.0	32.2
92	4.0	317.0			143.0	51233.0	196.0	21553.0	27.0	5358.0	34.0	3539.0	9.0	1173.0
93	1.0	551.2	1.0	1.0	300.0	35477.0	198.0	21357.0	19.0	1548.0	48.0	20924.0	6.0	3448.0
94					358.0	26488.0	336.0	39669.0	12.0	1454.0	48.0	9160.0	1.0	31.2
95	1.0	22.9			425.0	36777.0	263.0	32407.0	19.0	1075.0	25.0	3052.0		
96	1.0	4.2			150.0	6995.0	103.0	4693.0	10.0	305.8	17.0	500.5		

<b>Banded rudderfish</b>														
Year	Alabama		Florida (east)		Florida (west)		Louisiana		Mississippi		Texas		Other	
	n	lbs	n	lbs	n	lbs	n	lbs	n	lbs	n	lbs	n	lbs
91					1.0	16.6								
92					26.0	7154.0	2.0	53.0			3.0	114.4	10.0	2354.0
93					146.0	15425.0	5.0	110.2			2.0	96.8	1.0	315.0
94					188.0	14075.0	18.0	1798.0			3.0	713.5	1.0	2.1
95					259.0	23855.0	8.0	1112.0			1.0	148.8		
96					114.0	7636.0	5.0	169.6						

b.

Year	Lesser amberjack		Almaco jack		Banded rudderfish		Combined	
	n	lbs	n	lbs	n	lbs	n	lbs
92	109.0	10997.0	413.0	83173.0	41.0	9675.0	563.0	103845.0
93	393.0	47005.0	573.0	83306.0	154.0	15947.0	1120.0	146258.0
94	551.0	78453.0	755.0	76802.0	210.0	16589.0	1516.0	171844.0
95	500.0	69045.0	733.0	73335.0	268.0	25115.0	1501.0	167495.0
96	212.0	42647.0	281.0	12499.0	119.0	7805.0	612.0	62951.0

Table 2. Pounds landed of the minor amberjack species from the Gulf of Mexico group as reported from commercial logbooks, 1992-1995. Number of trips are in parenthesis. H = handlines, L = longline, S = Spears, T = Traps, and Tr = Troll. (\*) denotes some gears not in totals.

Lesser amberjack		Alabama	Florida (east)	Florida (west)	Louisiana	Mississippi	Texas	Other	All states
Year	Gear	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
91	H L S T TR ALL*								
92	H L S T TR ALL*	48.0 (1) 122.7 (1)		8474.0 (43) 51.0 (1)	1502.0 (40) 69.8 (6)		45.8 (1) 8.3 (1)	151.8 (2)	10222.0 (87) 251.8 (9)
93	H L S T TR ALL*		53.0 (1)	392.8 (7)				26.0 (1)	471.8 (9)
93	H L S T TR ALL*		170.7 (2)	53.0 (1)	8918.0 (51)	1590.0 (49)	54.1 (2)	191.3 (4)	10978.0 (109)
93	H L S T TR ALL*	21.0 (1)		21928.0 (259) 2027.0 (19) 276.7 (4) 102.1 (4) 16.0 (1)	21387.0 (83) 420.2 (6)	39.5 (2)	540.6 (11) 135.2 (1)	45.8 (1)	43962.0 (357) 2583.0 (26) 276.7 (4) 102.1 (4) 81.5 (4) 47005.0 (393)
94	H L S T TR ALL*	27.0 (1)		40551.0 (366) 813.2 (16) 6.2 (1) 78.1 (2) 319.3 (4)	33354.0 (135) 914.1 (8)	127.9 (2)	1424.0 (12) 181.0 (2)		75485.0 (516) 1908.0 (26) 6.2 (1) 78.1 (2) 319.3 (4) 78453.0 (551)
95	H L S T TR ALL*		27.0 (1)	42424.0 (391)	34269.0 (143)	127.9 (2)	1605.0 (14)		66691.0 (463) 2284.0 (340) 33.3 (2) 37.4 (1)
95	H L S T TR ALL*			34871.0 (330) 1545.0 (24) 33.3 (2) 37.4 (1)	30309.0 (122) 571.9 (7)	63.4 (1)	1447.0 (10) 167.5 (3)		69045.0 (500)
96	H L S T TR ALL*			36486.0 (357)	30881.0 (129)	63.4 (1)	1614.5 (13)		41927.0 (193) 626.2 (12) 52.0 (2) 21.0 (3)
96	H L S T TR ALL*			14546.0 (142) 580.4 (10) 52.0 (2) 21.0 (3)	26899.0 (44)		482.0 (7) 45.8 (2)		42647.0 (212)
				15220.0 (159)	26899.0 (44)		527.8 (9)		

#### Almaco jack

Almaco jack		Alabama	Florida (east)	Florida (west)	Louisiana	Mississippi	Texas	Other	All states
Year	Gear	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
91	H L S T TR ALL*			24.9 (2)	3686.0 (9) 70.7 (1)			32.2 (1)	3711.0 (11) 102.9 (2)
91	H L S T TR ALL*			24.9 (2)	3756.0 (10)			32.2 (1)	3814.0 (13)
92	H L S T TR ALL*	317.0 (4)		41722.0 (105) 3150.0 (13) 54.1 (1) 6053.0 (23)	18909.0 (180) 2644.0 (16)	5358.0 (27)	3514.0 (33) 25.0 (1)	731.1 (5) 220.5 (1)	70551.0 (354) 6039.0 (31) 54.1 (1) 6114.0 (25)
92	H L S T TR ALL*	317.0 (4)		51233.0 (143)	21553.0 (196)	5358.0 (27)	3539.0 (34)	1173.0 (9)	83173.0 (413)
93	H L S T TR ALL*	551.2 (1)	1.0 (1)	29911.0 (240) 4238.0 (39) 664.8 (8) 305.2 (11) 26.0 (1)	19507.0 (181) 1786.0 (14)	1548.0 (19)	19250.0 (40) 1319.0 (4)	3448.0 (6)	74216.0 (488) 7343.0 (57) 664.8 (8) 507.0 (14) 26.0 (1) 83306.0 (573)
93	H L S T TR ALL*	551.2 (1)	1.0 (1)	35478.0 (300)	21357.0 (198)	1548.0 (19)	20924.0 (48)	3448.0 (6)	
94	H L S T TR ALL*			20792.0 (316) 1664.0 (25) 2423.0 (3) 61.7 (3) 20.8 (1)	39034.0 (329) 620.9 (4)	1454.0 (12)	6845.0 (40) 992.8 (4)		68124.0 (697) 3278.0 (33) 2423.0 (3) 61.7 (3) 122.8 (6) 76802.0 (755)
95	H L S T TR ALL*	22.9 (1)		32924.0 (393) 1844.0 (230) 197.7 (5) 1192.0 (1)	31329.0 (249) 1038.0 (9)	1075.0 (19)	3035.0 (24) 17.7 (1)		68362.0 (685) 2922.0 (34) 197.7 (5) 1192.0 (1) 40.5 (5) 73335.0 (733)
96	H L S T TR ALL*	22.9 (1)		36777.0 (425)	40.5 (5) 32407.0 (263)	1075.0 (19)	3052.0 (25)		
96	H L S T TR ALL*	4.2 (1)		5884.0 (141) 401.4 (7)	4261.0 (101) 432.6 (2)	305.8 (10)	419.4 (16) 81.1 (1)		10874.0 (269) 915.1 (10)
		4.2 (1)		6995.0 (150)	4693.0 (103)	305.8 (10)	500.5 (17)		12499.0 (281)

Table 2 (cont.)

**Banded rudderfish**

Year	Gear	Alabama	Florida (east)	Florida (west)	Louisiana	Mississippi	Texas	Other	All states
		lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
91	H L S T TR ALL*								
92	H L S T TR ALL*			6995.0 (22)  159.1 (4)  7154.0 (26)	11.4 (1) 41.6 (1)  53.0 (2)		10.4 (2) 104.0 (1)  114.4 (3)	2354.0 (10)  2354.0 (10)	9370.0 (35) 145.6 (2)  159.1 (4)  9675.0 (41)
93	H L S T TR ALL*			15384.0 (141) 8.3 (1)  27.0 (3)  15425.0 (146)	110.2 (5)		96.8 (2)  96.8 (2)	315.0 (1)  315.0 (1)	15906.0 (149) 8.3 (1)  27.0 (3)  15947.0 (154)
94	H L S T TR ALL*			11519.0 (168) 400.4 (9)  8.4 (2) 30.2 (1) 14075.0 (188)	1781.0 (17) 17.7 (1)  1798.0 (18)		713.5 (3)  713.5 (3)	2.1 (1)  2.1 (1)	14015.0 (189) 418.1 (10)  8.4 (2) 30.2 (1) 16589.0 (210)
95	H L S T TR ALL*			23808.0 (254) 46.8 (5)  23855.0 (259)	689.5 (4) 422.2 (4)  1112.0 (8)		148.8 (1)  148.8 (1)		24498.0 (258) 617.8 (10)  25115.0 (268)
96	H L S T TR ALL*			7549 (113) 93.6 (1)  7636.0 (114)	76.0 (4)  169.6 (5)				7625.0 (117) 93.6 (1)  7805.0 (119)

Table 3. Estimates of recreational catches (numbers) of the minor amberjack species from the Gulf of Mexico group, 1981-1996.

**a. Lesser Amberjack**

Source	Group	Species	Year	Catch (Nos.)	Var(Catch) (10,000s)	Yield(lbs)
MRFSS	Gulf of Mexico	Lesser AJ	1982	19904	5459	
MRFSS	Gulf of Mexico	Lesser AJ	1983	32094	19314	
MRFSS	Gulf of Mexico	Lesser AJ	1984	24701	41321	
MRFSS	Gulf of Mexico	Lesser AJ	1985	29581	11776	
MRFSS	Gulf of Mexico	Lesser AJ	1986	15762	12489	
MRFSS	Gulf of Mexico	Lesser AJ	1987	9062	3347	
MRFSS	Gulf of Mexico	Lesser AJ	1988	3435	1180	
MRFSS	Gulf of Mexico	Lesser AJ	1989	117924	441634	
MRFSS	Gulf of Mexico	Lesser AJ	1990	145	2	
MRFSS	Gulf of Mexico	Lesser AJ	1991	0		
MRFSS	Gulf of Mexico	Lesser AJ	1992	0		
MRFSS	Gulf of Mexico	Lesser AJ	1993	90116	122406	
HBT	Gulf of Mexico	Lesser AJ	1986	164		366
HBT	Gulf of Mexico	Lesser AJ	1987	0		
HBT	Gulf of Mexico	Lesser AJ	1988	123		302
HBT	Gulf of Mexico	Lesser AJ	1989	1614		1803
HBT	Gulf of Mexico	Lesser AJ	1990	125		326
HBT	Gulf of Mexico	Lesser AJ	1991	328		522
HBT	Gulf of Mexico	Lesser AJ	1992	1383		2787
HBT	Gulf of Mexico	Lesser AJ	1993	124		1567
HBT	Gulf of Mexico	Lesser AJ	1994	912		1393
HBT	Gulf of Mexico	Lesser AJ	1995	6		348
All	Gulf of Mexico	Lesser AJ	1982	19904	5459	
All	Gulf of Mexico	Lesser AJ	1983	32094	19314	
All	Gulf of Mexico	Lesser AJ	1984	24701	41321	
All	Gulf of Mexico	Lesser AJ	1985	29581	11776	
All	Gulf of Mexico	Lesser AJ	1986	15926	12489	
All	Gulf of Mexico	Lesser AJ	1987	9062	3347	
All	Gulf of Mexico	Lesser AJ	1988	3558	1180	

Table 3 (cont.)

Source	Group	Species	Year	Catch (Nos.)	Var(Catch) (10,000s)	Yield(lbs)
All	GulfofMexico	Lesser AJ	1989	119538	441634	
All	GulfofMexico	Lesser AJ	1990	270	2	
All	GulfofMexico	Lesser AJ	1991	328	0	
All	GulfofMexico	Lesser AJ	1992	1383	0	
All	GulfofMexico	Lesser AJ	1993	90240	122406	
All	GulfofMexico	Lesser AJ	1994	912	0	
All	GulfofMexico	Lesser AJ	1995	6	0	

**b. Almaco Jack**

Source	Group	Species	Year	Catch (Nos.)	Var(Catch) (10,000s)	Yield(lbs)
MRFSS	GulfofMexico	Almaco	1981	2092	115	
MRFSS	GulfofMexico	Almaco	1982	1696	103	
MRFSS	GulfofMexico	Almaco	1983	0		
MRFSS	GulfofMexico	Almaco	1984	1025	46	
MRFSS	GulfofMexico	Almaco	1985	3529	392	
MRFSS	GulfofMexico	Almaco	1986	2058	85	
MRFSS	GulfofMexico	Almaco	1987	289	0	
MRFSS	GulfofMexico	Almaco	1988	5251	437	
MRFSS	GulfofMexico	Almaco	1989	12474	1698	
MRFSS	GulfofMexico	Almaco	1990	1870	63	
MRFSS	GulfofMexico	Almaco	1991	5814	276	
MRFSS	GulfofMexico	Almaco	1992	1857	11	
MRFSS	GulfofMexico	Almaco	1993	38428	34079	
MRFSS	GulfofMexico	Almaco	1994	26994	3769	
MRFSS	GulfofMexico	Almaco	1995	13451	3951	
MRFSS	GulfofMexico	Almaco	1996	2120	98	

TWPD	GulfofMexico	Almaco	1985	67		
TWPD	GulfofMexico	Almaco	1986	572		
TWPD	GulfofMexico	Almaco	1987	0		
TWPD	GulfofMexico	Almaco	1988	185		
TWPD	GulfofMexico	Almaco	1989	1324		

Table 3 (cont.)

Source	Group	Species	Year	Catch (Nos.)	Var(Catch) (10,000s)	Yield(lbs)
TWPD	GulfofMexico	Almaco	1990	131		
TWPD	GulfofMexico	Almaco	1991	22		
TWPD	GulfofMexico	Almaco	1992	831		
TWPD	GulfofMexico	Almaco	1993	153		
TWPD	GulfofMexico	Almaco	1994	1820		
TWPD	GulfofMexico	Almaco	1995	56		
HBT	GulfofMexico	Almaco	1986	4684		18279
HBT	GulfofMexico	Almaco	1987	764		2295
HBT	GulfofMexico	Almaco	1988	687		1825
HBT	GulfofMexico	Almaco	1989	3888		8545
HBT	GulfofMexico	Almaco	1990	2917		9553
HBT	GulfofMexico	Almaco	1991	2483		4877
HBT	GulfofMexico	Almaco	1992	1140		5573
HBT	GulfofMexico	Almaco	1993	1186		5747
HBT	GulfofMexico	Almaco	1994	1990		4877
HBT	GulfofMexico	Almaco	1995	1643		4354
All	GulfofMexico	Almaco	1981	2092	115	
All	GulfofMexico	Almaco	1982	1696	103	
All	GulfofMexico	Almaco	1983	0		
All	GulfofMexico	Almaco	1984	1025	46	
All	GulfofMexico	Almaco	1985	3596	392	
All	GulfofMexico	Almaco	1986	7314	85	
All	GulfofMexico	Almaco	1987	1053	0	
All	GulfofMexico	Almaco	1988	6123	437	
All	GulfofMexico	Almaco	1989	17686	1698	
All	GulfofMexico	Almaco	1990	4918	63	
All	GulfofMexico	Almaco	1991	8319	276	
All	GulfofMexico	Almaco	1992	3828	11	
All	GulfofMexico	Almaco	1993	39767	34079	
All	GulfofMexico	Almaco	1994	30804	3769	

Table 3 (cont.)

Source	Group	Species	Year	Catch (Nos.)	Var(Catch) (10,000s)	Yield(lbs)
All	GulfofMexico	Almaco	1995	15150	3951	
All	GulfofMexico	Almaco	1996	2120	98	

**c. Banded Rudderfish**

Source	Group	Species	Year	Catch (Nos.)	Var(Catch) (10,000s)	Yield(lbs)
MRFSS	GulfofMexico	B.Rudderfish	1990	9851	2081	
MRFSS	GulfofMexico	B.Rudderfish	1991	2642	486	
MRFSS	GulfofMexico	B.Rudderfish	1993	201702	289314	
MRFSS	GulfofMexico	B.Rudderfish	1994	30126	5391	
MRFSS	GulfofMexico	B.Rudderfish	1995	1900	64	
MRFSS	GulfofMexico	B.Rudderfish	1996	2081	31	

TPWD	GulfofMexico	B.Rudderfish	1983	597		4
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HBT	GulfofMexico	B.Rudderfish	1987	23		46
HBT	GulfofMexico	B.Rudderfish	1988	106		256
HBT	GulfofMexico	B.Rudderfish	1989	1792		2987
HBT	GulfofMexico	B.Rudderfish	1990	11347		19374
HBT	GulfofMexico	B.Rudderfish	1991	6208		1916
HBT	GulfofMexico	B.Rudderfish	1992	8902		2438
HBT	GulfofMexico	B.Rudderfish	1993	11319		3657
HBT	GulfofMexico	B.Rudderfish	1994	21722		4006
HBT	GulfofMexico	B.Rudderfish	1995	6291		4006

All	GulfofMexico	B.Rudderfish	1983	597		
All	GulfofMexico	B.Rudderfish	1984	0		
All	GulfofMexico	B.Rudderfish	1985	0		
All	GulfofMexico	B.Rudderfish	1986	0		
All	GulfofMexico	B.Rudderfish	1987	23		
All	GulfofMexico	B.Rudderfish	1988	106		
All	GulfofMexico	B.Rudderfish	1989	1792		

Table 3 (cont.)

Source	Group	Species	Year	Catch (Nos.)	Var(Catch) (10,000s)	Yield(lbs)
All	GulfofMexico	B.Rudderfish	1990	21198	2081	
All	GulfofMexico	B.Rudderfish	1991	8850	486	
All	GulfofMexico	B.Rudderfish	1992	8902		
All	GulfofMexico	B.Rudderfish	1993	213021	289314	
All	GulfofMexico	B.Rudderfish	1994	51848	5391	
All	GulfofMexico	B.Rudderfish	1995	8191	64	
All	GulfofMexico	B.Rudderfish	1996	2081	31	

#### d. Amberine

Source	Group	Species	Year	Catch (Nos.)	Var(Catch) (10,000s)	Yield(lbs)
HBT	GulfofMexico	Amberine	1986	10001		138012
HBT	GulfofMexico	Amberine	1987	16859		116693
HBT	GulfofMexico	Amberine	1988	3299		14952
HBT	GulfofMexico	Amberine	1989	5672		17141
HBT	GulfofMexico	Amberine	1990	3620		9301

#### c. Jacks

Source	Group	Species	Year	Catch (Nos.)	Var(Catch) (10,000s)	Yield(lbs)
MRFSS	GulfofMexico	Jacks	1981	30222	13718	
MRFSS	GulfofMexico	Jacks	1982	41133	19726	
MRFSS	GulfofMexico	Jacks	1983	125885	571135	
MRFSS	GulfofMexico	Jacks	1984	217597	1163044	
MRFSS	GulfofMexico	Jacks	1985	155958	418768	
MRFSS	GulfofMexico	Jacks	1986	37376	23089	
MRFSS	GulfofMexico	Jacks	1987	42664	16777	
MRFSS	GulfofMexico	Jacks	1988	69138	151940	
MRFSS	GulfofMexico	Jacks	1989	44196	132787	

Table 3 (cont.)

Source	Group	Species	Year	Catch (Nos.)	Var(Catch) (10,000s)	Yield(lbs)
MRFSS	GulfofMexico	Jacks	1990	33038	68417	
MRFSS	GulfofMexico	Jacks	1991	286795	3143562	
MRFSS	GulfofMexico	Jacks	1992	24865	14464	
MRFSS	GulfofMexico	Jacks	1993	68881	45571	
MRFSS	GulfofMexico	Jacks	1994	134664	311037	
MRFSS	GulfofMexico	Jacks	1995	1115	124	

Table 4. Distribution of recreational catches (numbers) of the minor amberjack species in the Gulf of Mexico by fishery and state, 1981-1996.

**a. Lesser Amberjack**

Year	Fishery	Texas	Louisiana	Mississippi	Alabama	Florida (west)	All states
1982	Shore				3565		3565
	Charter/Headbt		4765		608		10966
	Private				10966		5373
	All modes		4765		15139		19904
1983	Charter/Headbt				24523		24523
	Private				7571		7571
	All modes				32094		32094
1984	Charter/Headbt				1905		1905
	Private				2578	20218	22796
	All modes				4483	20218	24701
1985	Charter/Headbt			766	10862		11628
	Private		17953				17953
	All modes		17953	766	10862		29851
1986	Headboat	164					164
	Private				438	15324	15762
	All modes	164			438	15324	15926
1987	Charter				185	7710	7895
	Private					1167	1167
	All modes				185	8877	9062
1988	Headboat					123	123
	Private					3435	3435
	All modes					3558	3558
1989	Headboat					1614	1614
	Charter					5586	5586
	Private		602			111736	112338
	All modes		602			118936	119538
1990	Headboat					125	125
	Charter				145		145
	All modes				145	125	270
1991	Headboat					328	328
	All modes					328	328

Table 4 (cont.)

Year	Fishery	Texas	Louisiana	Mississippi	Alabama	Florida (west)	All states
1992	Headboat					1383	1383
	All modes					1383	1383
1993	Shore					90116	90116
	Headboat					124	124
	All modes					90240	90240
1994	Headboat					912	912
	All modes					912	912
1995	Headboat					6	6
	All modes					6	6

**b. Almaco Jack**

Year	Fishery	Texas	Louisiana	Mississippi	Alabama	Florida (west)	All states
1981	Charter/Headbt					462	462
	Private				814	816	1630
	All modes				814	1278	2092
1982	Private					1696	1696
	All modes					1696	1696
1984	Charter/Headbt					1025	1025
	All modes					1025	1025
1985	Shore					1724	1724
	Charter/Headbt					1805	1805
	Charter	67					67
	All modes	67				3529	3596
1986	Headboat	182	10			4492	4684
	Charter					2058	2058
	Private	572					572
	All modes	754	10			6550	7314
1987	Headboat	362				402	764
	Charter		120		70	99	289
	All modes	362	120		70	501	1053
1988	Headboat	152				535	687
	Charter					806	806
	Private	185				4445	4630
	All modes	337				5786	6123

Table 4 (cont.)

Year	Fishery	Texas	Louisiana	Mississippi	Alabama	Florida (west)	All states
1989	Headboat	18	4			38	60
	Charter	694			764	11710	13168
	Private	630					630
	All modes	1342	4		764	11748	13858
1990	Headboat	901	39			1977	2917
	Charter				379	1491	1870
	Private	131					131
	All modes	1032	39		379	3468	4918
1991	Headboat	918	102			1463	2483
	Charter		2541		339	2934	5814
	Private	22					22
	All modes	940	2643		339	4397	8319
1992	Headboat	613	77			450	2119
	Charter		402		568	887	1857
	Private	831					831
	All modes	1444	479		568	1337	4807
1993	Headboat	496				541	1186
	Charter				881	5923	6804
	Private	153				31624	31777
	All modes	949			881	38088	39767
1994	Headboat	943	99			948	1990
	Charter		6542		1504	16961	25007
	Private	1820	627		670	690	3807
	All modes	2763	7268		2174	18599	30804
1995	Headboat	704	281			658	1643
	Charter		706		178		884
	Private	56				12567	12623
	All modes	760	987		178	13225	15150
1996	Charter		116			2004	2120
	All modes		116			2004	2120

Table 4 (cont.)

**c. Banded Rudderfish**

Year	Fishery	Texas	Louisiana	Mississippi	Alabama	Florida (west)	All states
1983	Private	597					597
	All modes	597					597
1987	Headboat					23	23
	All modes					23	23
1988	Headboat					106	106
	All modes					106	106
1989	Headboat					1792	1792
	All modes					1792	1792
1990	Headboat					11347	11347
	Charter					9851	9851
	All modes					21198	21198
1991	Headboat	5				6203	6208
	Charter					2642	2642
	All modes	5				8845	8850
1992	Headboat					8902	8902
	All modes					8902	8902
1993	Shore					148166	148166
	Headboat					11319	11319
	Charter				2076	39905	41981
	Private					11555	11555
	All modes				2076	40945	43021
1994	Headboat					21722	21722
	Charter				5423	24703	30126
	All modes				5423	46425	51848
1995	Headboat		2			6289	6291
	Charter				469	486	955
	Private					945	945
	All modes		2		469	7720	8191
1996	Charter					2081	2081
	1996					2081	2081

Table 4 (cont.)

**d. Jacks**

Year	Fishery	Texas	Louisiana	Mississippi	Alabama	Florida (west)	All states
1981	Shore					25942	25942
	Private	1714				2566	4280
	All modes	1714				28508	30222
1982	Shore					22892	22892
	Private		5016			13225	18241
	All modes		5016			36117	41133
1983	Shore					81994	81994
	Charter/Headbt		6944				6944
	Private		19893			17054	36947
	All modes		26837			99048	125885
1984	Shore					46653	46653
	Charter/Headbt		913			2218	3131
	Private		6701			161112	167813
	All modes		7614			209983	217597
1985	Shore					7970	7970
	Charter/Headbt	44272	1077			2922	48271
	Private			658		99059	99717
	All modes	44272	1077	658		109951	155958
1986	Charter		97			5815	5912
	Private					31464	31464
	All modes		97			37279	37376
1987	Charter					13378	13378
	Private			3257		26029	29286
	All modes			3257		39407	42664
1988	Shore					41057	41057
	Charter					2122	2122
	Private					25959	25959
	All modes					69138	69138
1989	Shore					38337	38337
	Private					5859	5859
	All modes					44196	44196
1990	Shore					27128	27128
	Charter			146			146
	Private					5764	5764

Table 4 (cont.)

Year	Fishery	Texas	Louisiana	Mississippi	Alabama	Florida (west)	All states
	All modes			146		32892	33038
1991	Shore					280615	280615
	Private					6180	6180
	All modes					286795	286795
1992	Shore					10355	10355
	Charter					944	944
	Private					13566	13566
	All modes					24865	24865
1993	Shore					19142	19142
	Charter					40684	40684
	Private				4374	4681	9055
	All modes				4374	64507	68881
1994	Shore					132847	132847
	Charter		427			547	974
	Private					843	843
	All modes		427			134237	134664
1995	Shore					1115	1115
	All modes					1115	1115

**Table 5.** Summary biometric information by sample source for sample average weight and length of the minor amberjack species in the Gulf of Mexico group. (N) denotes sample size.

**a. Lesser amberjack**

Region	Source	Year	Sample length (cm)		Sample weight (lbs)	
			Mean	N	Mean	N
Gulf of Mexico	Rec MRFSS	1982	39.00	1	1.10	2
		1984	45.21	12	2.80	14
		1985	35.00	12	2.58	7
		1986	33.00	1	1.10	1
		1987	42.65	10	3.53	11
		1989	31.23	11	1.98	9
		1990	44.20	1		
		1993	23.70	53		
	Rec Alcbt	1991	44.03	27		
	Rec Headboat	1986	35.06	67	2.14	51
		1987	41.64	37	3.01	33
		1988	36.82	13	2.24	13
		1989	31.76	43	2.58	20
		1990	36.22	5	2.01	5
		1992	41.97	3	2.71	3
		1993	45.00	1	3.89	1
		1995	66.20	1	11.02	1
	Rec All	1982	39.00	1	1.10	2
		1984	45.21	12	2.80	14
		1985	35.00	12	2.58	7
		1986	35.03	68	2.12	52
		1987	41.86	47	3.14	44
		1988	36.82	13	2.24	13
		1989	31.65	54	2.40	29
		1990	37.55	6	2.01	5
		1991	44.03	27		
		1992	41.97	3	2.71	3
		1993	24.09	54	3.89	1
		1995	66.20	1	11.02	1
	Com Tip-len	1990	66.67	3		
		1991	35.50	2		
		1992	36.45	2		
		1993	33.50	2		
		1994	35.21	139		
		1995	48.11	72		
	Com Tip-wt	1994			5.05	12
		1995			7.09	8
	Com All	1990	66.67	3		
		1991	35.50	2		
		1992	36.45	2		
		1993	33.50	2		
		1994	35.21	139	5.05	12
		1995	48.11	72	7.09	8

**b. Almaco**

Region	Source	Year	Sample length (cm)		Sample weight (lbs)	
			Mean	N	Mean	N
Gulf of Mexico	Rec MRFSS	1981	37.83	3	2.13	3
		1982	18.75	2		
		1984	49.17	3	4.78	3
		1985	40.13	4	2.91	5
		1986	38.00	2	2.65	2
		1987	46.42	6	4.38	7
		1988	37.20	2	2.54	2
		1989	46.84	15	4.12	16
		1990	44.29	7	3.53	7
		1991	35.80	19	2.31	19
		1992	38.90	34	2.64	34
		1993	52.21	7	3.67	3
		1994	40.09	28	3.98	27
		1995	40.97	6	3.09	5

Table 5 (cont.)

Region	Source	Year	Sample length (cm)		Sample weight (lbs)	
			Mean	N	Mean	N
Gulf of Mexico	Rec TWPD	1983	36.57	10		
		1984	36.38	1		
		1985	34.83	13		
		1986	32.66	9		
		1988	50.96	2		
		1989	25.52	19		
		1990	20.92	2		
		1991	31.00	2		
		1992	36.95	2		
		1993	35.73	2		
	Rec Headboat	1994	35.38	24		
		1995	37.25	5		
		1980	45.63	5	5.97	5
		1986	44.09	46	4.06	42
		1987	41.86	40	3.62	36
		1988	42.01	34	3.69	29
		1989	39.92	185	2.45	149
		1990	43.15	38	3.43	37
		1991	37.08	58	2.34	50
		1992	38.42	51	2.79	32
	Rec Tip-len	1993	36.47	76	2.46	62
		1994	38.04	152	2.78	136
	Rec Alcbt	1995	36.74	111	2.32	98
		1991	35.00	2		
		1993	37.00	1		
		1991	45.47	69		
		1992	43.70	32		
		1993	47.55	2		
		1994	44.09	7		
		1995	37.87	24		
		1980	45.63	5	5.97	5
		1981	37.83	3	2.13	3
	Rec All	1982	18.75	2		
		1983	36.57	10		
		1984	45.97	4	4.78	3
		1985	36.07	17	2.91	5
		1986	42.07	57	4.00	44
		1987	42.45	46	3.74	43
		1988	42.23	38	3.62	31
		1989	39.14	219	2.61	165
		1990	42.37	47	3.45	44
		1991	40.67	150	2.33	69
		1992	39.95	119	2.71	66
		1993	37.97	88	2.52	65
		1994	38.21	211	2.98	163
		1995	37.12	146	2.36	103
		1983	40.30	1		
	Com Tip-len	1984	30.00	4		
		1985	77.28	54		
		1986	67.66	16		
		1987	66.12	4		
		1988	51.92	29		
		1990	58.56	202		
		1991	56.06	116		
		1992	76.48	133		
		1993	53.48	204		
		1994	49.31	399		
	Com Pcl	1995	48.82	269		
		1993			1.98	1
		1991			8.63	13
		1992			12.07	14
		1993			8.86	23
	Com Tip-wt	1994			8.70	64
		1995			8.36	36

Table 5 (cont.)

Region	Source	Year	Sample length (cm)		Sample weight (lbs)	
			Mean	N	Mean	N
Gulf of Mexico	Com All	1983	40.30	1		
		1984	30.00	4		
		1985	77.28	54		
		1986	67.66	16		
		1987	66.12	4		
		1988	51.92	29		
		1990	58.56	202		
		1991	56.06	116	8.63	13
		1992	76.48	133	11.40	15
		1993	53.48	204	8.86	23
		1994	49.31	399	8.70	64
		1995	48.82	269	8.36	36

c. Banded rudderfish

Region	Source	Year	Sample length (cm)		Sample weight (lbs)	
			Mean	N	Mean	N
GOM	Rec MRFSS	1990	42.30	2	2.43	2
		1993	37.96	57	4.44	33
		1994	46.27	26	3.54	25
		1995	37.10	4	2.15	4
	Rec TWPD	1983	18.65	5		
	Rec Headboat	1986	38.00	18	2.01	18
		1987	37.02	37	2.48	29
		1988	40.74	38	2.57	35
		1989	35.96	158	2.11	127
		1990	36.64	90	1.95	85
		1991	42.80	59	3.02	54
		1992	42.24	85	2.76	82
		1993	34.23	59	1.69	56
		1994	40.61	85	2.73	84
		1995	40.99	46	2.85	45
	Rec Alcbt	1991	48.15	2		
		1994	69.00	1		
	Rec All	1983	18.65	5		
		1986	38.00	18	2.01	18
		1987	37.02	37	2.48	29
		1988	40.74	38	2.57	35
		1989	35.96	158	2.11	127
		1990	36.76	92	1.96	87
		1991	42.98	61	3.02	54
		1992	42.24	85	2.76	82
		1993	36.07	116	2.71	89
		1994	42.18	112	2.91	109
		1995	40.67	50	2.79	49
	Com Tip-len	1991	56.56	170		
		1992	74.75	3		
		1993	47.29	48		
		1994	43.37	330		
		1995	47.08	434		
	Com Tip-wt	1992			17.18	2
		1993			5.20	6
		1994			4.39	7
		1995			3.44	6
	Com All	1991	56.56	170		
		1992	74.75	3	17.18	2
		1993	47.29	48	5.20	6
		1994	43.37	330	4.39	7
		1995	47.08	434	3.44	6

**Table 6. Summary biometric information for sample average weight and length of the minor amberjack species in the Gulf of Mexico region for all sources combined.**

<b>a. Lesser amberjack</b>								
Region	Fishery	Year	Sample length (cm)			Sample weight (lbs)		
			Mean	Variance	N	Mean	Variance	N
GOM	Recreational	1982				1.10		1
		1984	45.21	2.47	12	2.80	0.02	14
		1985	35.00	5.32	12	2.58	0.15	7
		1986	33.00		1	1.10		1
		1987	42.65	9.76	10	3.53	0.68	11
		1989	31.23	0.95	11	1.98	0.22	9
		1990	44.20		1			
		1991	44.03	1.91	27			
		1993	23.70	0.06	53			
GOM	Commercial	1990	66.67	362.53	3			
		1991	35.50	27.56	2			
		1992	36.45	0.56	2			
		1993	33.50	0.04	2			
		1994	35.21	0.99	139	5.05	1.79	12
		1995	48.11	8.03	72	7.09	6.94	8
GOM	Headboat	1982	39.00			1.10		1
		1986	35.06	0.92	67	2.14	0.06	51
		1987	41.64	2.32	37	3.01	0.07	33
		1988	36.82	1.63	13	2.24	0.06	13
		1989	31.76	2.04	43	2.58	0.40	20
		1990	36.22	6.20	5	2.01	0.14	5
		1992	41.97	21.87	3	2.71	0.66	3
		1993	45.00		1	3.89		1
		1995	66.20		1	11.02		1
<b>b. Almaco jack</b>								
Region	Fishery	Year	Sample length (cm)			Sample weight (lbs)		
			Mean	Variance	N	Mean	Variance	N
GOM	Recreational	1981	37.83	9.69	3	2.13	0.49	3
		1982	18.75	0.06	2			
		1984	49.17	1.86	3	4.78	0.04	3
		1985	34.83	1.13	13	3.09		1
		1986	33.63	5.36	11	2.65	1.75	2
		1987	46.42	7.97	6	4.38	0.43	7
		1988	44.08	29.33	4	2.54	1.47	2
		1989	34.92	4.92	34	4.12	0.33	16
		1990	39.09	22.49	9	3.53	0.47	7
		1991	42.93	1.66	92	2.31	0.04	19
		1992	41.10	1.19	68	2.64	0.09	34
		1993	47.42	12.71	12	3.67	0.95	3
		1994	38.65	2.93	59	3.98	1.14	27
		1995	38.31	0.77	35	3.09	0.12	5
GOM	Commercial	1983	40.30		1			
		1984	30.00	0.79	4			
		1985	77.28	9.42	54			
		1986	67.66	9.19	16			
		1987	66.13	20.14	4			
		1988	51.92	6.52	29			
		1990	58.56	1.59	202			
		1991	56.06	2.23	116	8.63	3.10	13
		1992	76.48	1.41	133	12.07	2.78	14
		1993	53.48	0.77	204	8.86	0.42	23
		1994	49.31	0.64	399	8.70	0.51	64
		1995	48.82	1.06	269	8.36	0.84	36

**Table 6 (cont.)**

Region	Fishery	Year	Sample length (cm)			Sample weight (lbs)		
			Mean	Variance	N	Mean	Variance	N
GOM	Headboat	1980	45.63	127.45	5	5.97	17.43	5
		1983	36.57	5.37	10			
		1984	36.38		1			
		1985	40.13	21.64	4	2.87	1.39	4
		1986	44.09	4.03	46	4.06	0.25	42
		1987	41.86	2.79	40	3.62	0.17	36
		1988	42.01	14.38	34	3.69	0.34	29
		1989	39.92	0.67	185	2.45	0.02	149
		1990	43.15	2.58	38	3.43	0.15	37
		1991	37.08	0.89	58	2.34	0.03	50
		1992	38.42	1.03	51	2.77	0.05	33
		1993	36.47	0.79	76	2.46	0.04	62
		1994	38.04	0.63	152	2.78	0.05	136
		1995	36.74	0.43	111	2.32	0.03	98
<b>c. Banded rudderfish</b>								
Region	Fishery	Year	Sample length (cm)			Sample weight (lbs)		
			Mean	Variance	N	Mean	Variance	N
GOM	Recreational	1983	18.65	1.65	5			
		1990	42.30	18.49	2	2.43	0.44	2
		1991	48.15	69.72	2			
		1993	37.96	2.76	57	4.44	0.15	33
		1994	47.11	1.22	27	3.54	0.02	25
		1995	37.10	16.95	4	2.15	0.59	4
GOM	Commercial	1991	56.56	1.81	170			
		1992	74.75	62.65	3	17.18	17.13	2
		1993	47.29	1.58	48	5.20	0.46	6
		1994	43.37	0.15	330	4.39	0.49	7
		1995	47.08	0.02	434	3.44	0.03	6
GOM	Headboat	1986	38.00	0.97	18	2.01	0.02	18
		1987	37.02	1.68	37	2.48	0.03	29
		1988	40.74	1.02	38	2.57	0.04	35
		1989	35.96	0.39	158	2.11	0.01	127
		1990	36.64	0.26	90	1.95	0.01	85
		1991	42.80	0.62	59	3.02	0.02	54
		1992	42.24	0.34	85	2.76	0.01	82
		1993	34.23	0.41	59	1.69	0.01	56
		1994	40.61	0.39	85	2.73	0.01	84
		1995	40.99	0.95	46	2.85	0.03	45

**Table 7.** Observed CPUE (lbs/trip) landed of the minor amberjack species from the Gulf of Mexico as reported from commercial logbooks. The number of trips (n) is noted in parenthesis. H = handline, L = longline, S = spears, T = Traps, and Tr = troll.  
(\*) denotes some gears not in total.

a. Lesser amberjack									
Year	Gear	Alabama	Florida (east)	Florida (west)	Louisiana	Mississippi	Texas	Other	All states
		lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
91	H L S T TR ALL*								
92	H L S T TR ALL*	48.0 (1) 122.7 (1)		197.1 (43) 51.0 (1) 53.0 (1)	37.5 (40) 11.6 (6) 56.1 (7)		45.8 (1) 8.3 (1)	75.9 (2) 26.0 (1)	117.5 (87) 28.0 (9) 52.4 (9)
93	H L S T TR ALL*	21.0 (1)		84.7 (259) 106.7 (19) 69.2 (4) 25.5 (4) 16.0 (1) 84.8 (287)	257.7 (83) 70.0 (6) 65.5 (1) 243.0 (90)	19.8 (2)	49.1 (11) 135.2 (1)	45.8 (1)	123.1 (357) 99.3 (26) 69.2 (4) 25.5 (4) 40.7 (2) 119.6 (393)
94	H L S T TR ALL*	27.0 (1)		110.8 (366) 50.8 (16) 6.2 (1) 39.0 (2) 79.8 (4) 108.5 (391)	247.1 (135) 114.3 (8)	64.0 (2)	118.7 (12) 90.5 (2)		146.3 (516) 73.4 (26) 6.2 (1) 39.0 (2) 79.8 (4) 142.4 (551)
95	H L S T TR ALL*			105.7 (330) 64.4 (24) 16.6 (2) 37.4 (1)	248.4 (122) 81.7 (7)	63.4 (1)	144.7 (10) 55.8 (3)		144.0 (463) 67.2 (34) 16.6 (2) 37.4 (1)
96	H L S T TR ALL*			102.2 (357)	239.4 (129)	63.4 (1)	124.2 (13)		138.1 (500)
				102.4 (142) 58.0 (10) 26.0 (2) 7.0 (3)	611.3 (44)		68.9 (7) 22.9 (2)		217.2 (193) 52.2 (12) 26.0 (2) 7.0 (3)
				95.7 (159)	611.3 (44)		58.6 (9)		201.2 (212)

b. Almaco jack									
Year	Gear	AL	FLE	FLW	LA	MS	TX	Other	ALL*
		lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
91	H L S T TR ALL*			12.5 (2)	409.5 (9) 70.7 (1)			32.2 (1)	337.3 (11) 51.5 (2)
				12.5 (2)	375.6 (10)			32.2 (1)	293.4 (13)
92	H L S T TR ALL*	79.2 (4)		397.4 (105) 242.3 (13) 54.1 (1) 263.2 (23)	105.0 (180) 165.2 (16)	198.5 (27)	106.5 (33) 25.0 (1)	146.5 (5) 220.5 (1) 30.2 (2)	199.3 (354) 194.8 (31) 54.1 (1) 244.5 (25)
		79.2 (4)		358.3 (143)	110.0 (196)	198.5 (27)	104.1 (34)	130.4 (9)	201.4 (413)
93	H L S T TR ALL*	551.2 (1)	1.0 (1)	124.6 (240) 108.7 (39) 83.1 (8) 27.7 (11)	107.8 (181) 127.6 (14)	81.4 (19)	481.2 (40) 329.7 (4)	574.7 (6)	152.1 (488) 128.8 (57) 83.1 (8) 36.2 (14) 26.0 (1)
		551.2 (1)	1.0 (1)	118.3 (300)	107.9 (198)	81.4 (19)	435.9 (48)	574.7 (6)	145.4 (573)
94	H L S T TR ALL*			65.8 (316) 66.6 (25) 807.5 (3) 20.6 (3) 20.8 (1)	118.6 (329) 155.2 (4)	121.2 (12)	171.1 (40) 248.2 (4)		97.7 (697) 99.3 (33) 807.5 (3) 20.6 (3) 20.5 (6)
				74.0 (358)	118.1 (336)	121.2 (12)	43.7 (2) 190.8 (48)	31.2 (1)	101.7 (755)

Table 7 (cont.)

Year	Gear	AL	FLE	FLW	LA	MS	TX	Other	ALL*
		lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
95	H L S T TR ALL*	22.9 (1)		83.8 (393) 80.2 (23) 39.5 (5) 1192.0 (1) 86.5 (425)	125.8 (249) 115.3 (9) 8.1 (5) 123.2 (263)	56.6 (19) 56.6 (19)	126.4 (24) 17.7 (1) 122.1 (25)		99.8 (685) 86.0 (34) 39.5 (5) 1192.0 (1) 8.1 (5) 100.0 (733)
96	H L S T TR ALL*	4.2 (1)		41.7 (141) 57.3 (7)	42.2 (101) 216.3 (2)	30.6 (10)	26.2 (16) 81.1 (1)		40.4 (269) 91.5 (10) 44.5 (281)

## c. Banded rudderfish

Year	Gear	AL	FLE	FLW	LA	MS	TX	Other	ALL*
		lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
91	H L S T TR ALL*			16.6 (1) 16.6 (1)					16.6 (1) 16.6 (1)
92	H L S T TR ALL*			317.9 (22) 39.8 (4) 275.2 (26)	11.4 (1) 41.6 (1) 26.5 (2)		5.2 (2) 104.0 (1) 38.1 (3)	235.4 (10) 235.4 (10)	267.7 (35) 72.8 (2) 39.8 (4) 236.0 (41)
93	H L S T TR ALL*			109.1 (141) 8.3 (1) 9.0 (3) 105.6 (146)	22.0 (5)		48.4 (2)	315.0 (1)	106.8 (149) 8.3 (1) 9.0 (3) 103.6 (154)
94	H L S T TR ALL*			68.6 (168) 44.5 (9) 4.2 (2) 30.2 (1) 74.9 (188)	104.7 (17) 17.7 (1) 99.9 (18)		237.8 (3)	2.1 (1) 2.1 (1)	74.2 (189) 41.8 (10) 4.2 (2) 30.2 (1) 79.0 (210)
95	H L S T TR ALL*			93.7 (254) 9.4 (5) 92.1 (259)	172.4 (4) 105.6 (4) 139.0 (8)		148.8 (1)		95.0 (258) 61.8 (10) 93.7 (268)
96	H L S T TR ALL*			66.8 (113) 67.0 (114)	19.0 (4) 93.6 (1) 33.9 (5)				65.2 (117) 93.6 (1) 65.6 (119)

Table 8. Observed recreational CPUE of the minor amberjack species in the Gulf of Mexico.

Data Source/Fishery								
Lesser amberjack								
	MRFSS			NMFS Headboat <sup>1</sup>		TPWD <sup>2</sup>		
Year	CPH	CPA	N	CPA	N	CPH	CPA	N
1982	1.2	6.3	10					
1983	0.6	2.3	10			0.7	0.1	4
1984	0.4	1.6	19			0.3	0.1	1
1985	0.5	2.0	34			0.52	1.4	6
1986	0.6	2.6	7	0.3	7	0.3	0.7	4
1987	0.2	1	9					
1988	0.7	2	1	0.6	6	0.1	0.4	2
1989	0.5	1.4	5	1.1	15	0.3	0.7	10
1990	0.1	0.3	1	0.5	5	0.1	0.7	1
1991				0.6	17	0.4	0.7	1
1992				0.5	79			
1993	1.9	7.6	8	0.2	18			
1994				1.1	19			
1995				0.1	2			
Total			104		168			30

Data Source/Fishery								
Almaco								
	MRFSS			NMFS Headboat <sup>1</sup>		TPWD <sup>2</sup>		
Year	CPH	CPA	N	CPA	N	CPH	CPA	N
1981	0.1	0.6	3					
1982								
1983						0.7	0.1	4
1984	0.2	1.0	1			0.3	0.0	1
1985	0.3	1.0	2			0.4	1.4	7

Table 8 (cont.)

Year	MRFSS			NMFS Headboat <sup>1</sup>		TPWD <sup>2</sup>		
	CPH	CPA	N	CPA	N	CPH	CPA	N
1986	0.1	0.6	2	0.4	56	0.3	0.7	4
1987	0.0	0.2	5	0.2	71			0
1988	0.1	0.3	3	0.2	87	0.1	0.4	2
1989	0.1	0.7	7	0.3	316	0.3	0.7	8
1990	0.2	0.6	5	0.3	381	0.1	0.7	1
1991	0.1	0.5	14	0.2	302	0.4	0.7	1
1992	0.1	0.3	28	0.1	260	0.2	0.7	1
1993	0.2	1.8	8	0.1	271	0.1	0.3	2
1994	0.2	0.9	30	0.2	399	0.3	0.8	13
1995	0.2	0.8	6	0.2	374	0.2	0.7	3
Total			114		2631			51

## Data Source/Fishery

Banded rudderfish								
Year	MRFSS			NMFS Headboat <sup>1</sup>		TPWD <sup>2</sup>		
	CPH	CPA	N	CPA	N	CPH	CPA	N
1981	0.4	3.0	2					
1982								
1983						0.5	2.5	1
1984								
1985								
1986								
1987				0.2	2			
1988				0.2	15			
1989				0.9	42			

Table 8 (cont.)

Year	MRFSS			NMFS Headboat <sup>3</sup>		TPWD <sup>4</sup>		
	CPH	CPA	N	CPA	N	CPH	CPA	N
1990	0.1	0.7	3	1.2	164			
1991	0.5	2.1	2	0.8	187			
1992			0	0.9	281			
1993	1.7	7.1	43	0.9	330			
1994	0.2	1.0	8	1.1	535			
1995	0.1	0.3	3	0.5	224			
Total			61		1780			1

NMFS headboat survey began in Gulf of Mexico in 1986.  
 TPWD intercept data available from 1983.

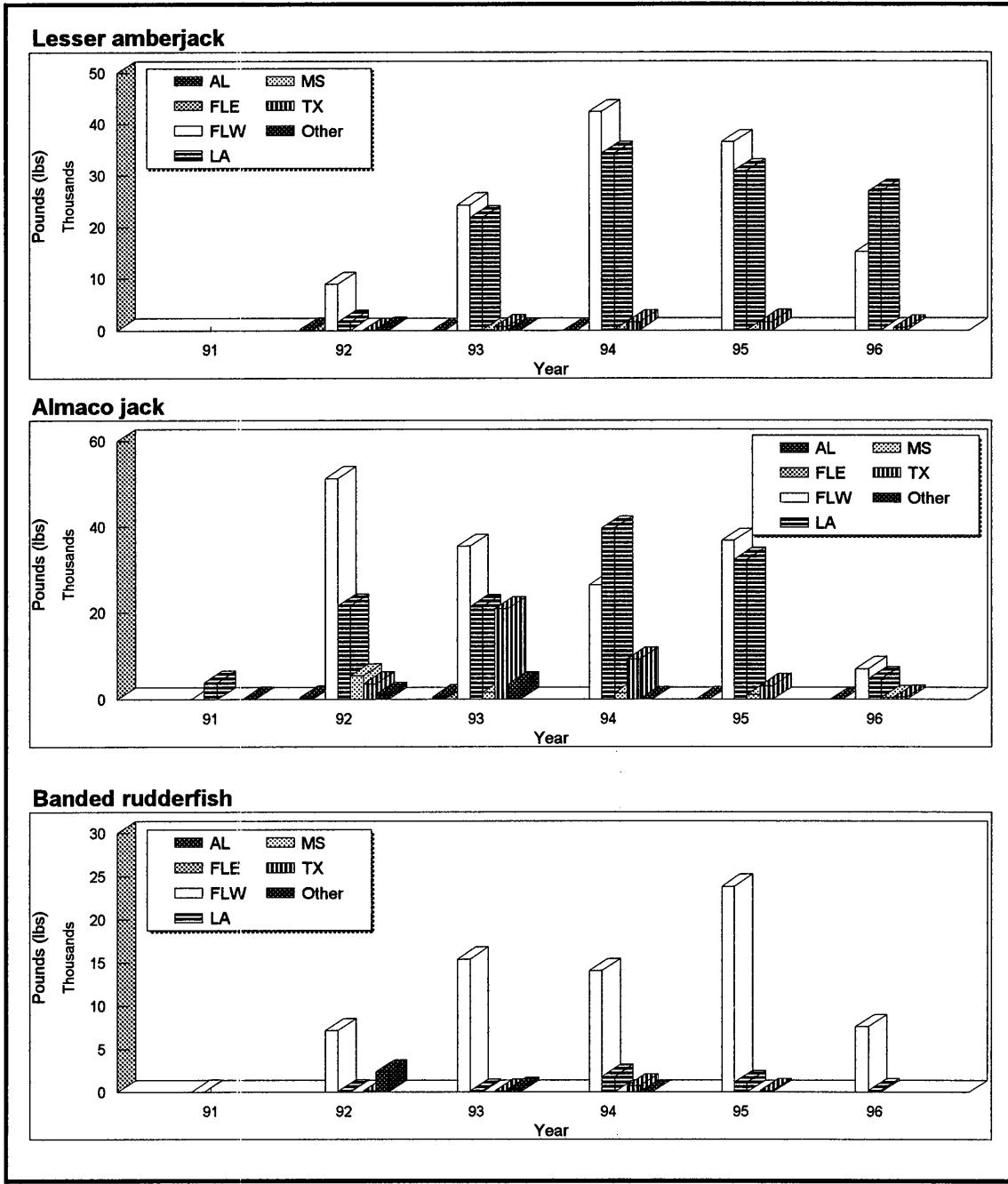
CPH = Catch per angler hour (MRFSS)  
 = Catch per angler trip hour (TPWP)  
 CPA = Catch per angler  
 N = Number observations

Table 9 Estimated percent reduction in recreational catch for Almaco jack in the Gulf of Mexico for 1995 for several bag limit options (N = number of observations).

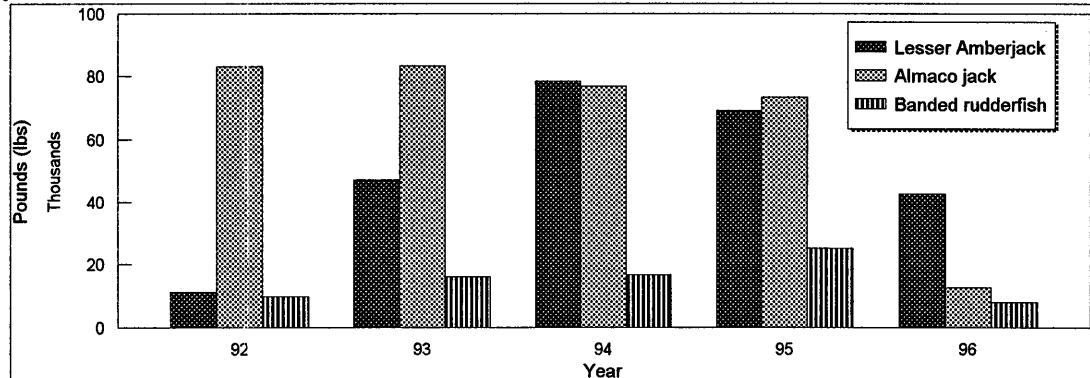
Data Source/Fishery	
Almaco Jack	
Bag Limit	NMFS
Option	Headboat
1	2.3
2	0.0
3	0.0
4	0.0
5	0.0
N	374

**Figure 1.** Pounds landed by state of the minor amberjack species from the Gulf of Mexico reported by commercial logbooks.

a.



b.



**Figure 2.** Pounds landed by gear type of the minor amberjack species from the Gulf of Mexico as reported from commercial logbooks.

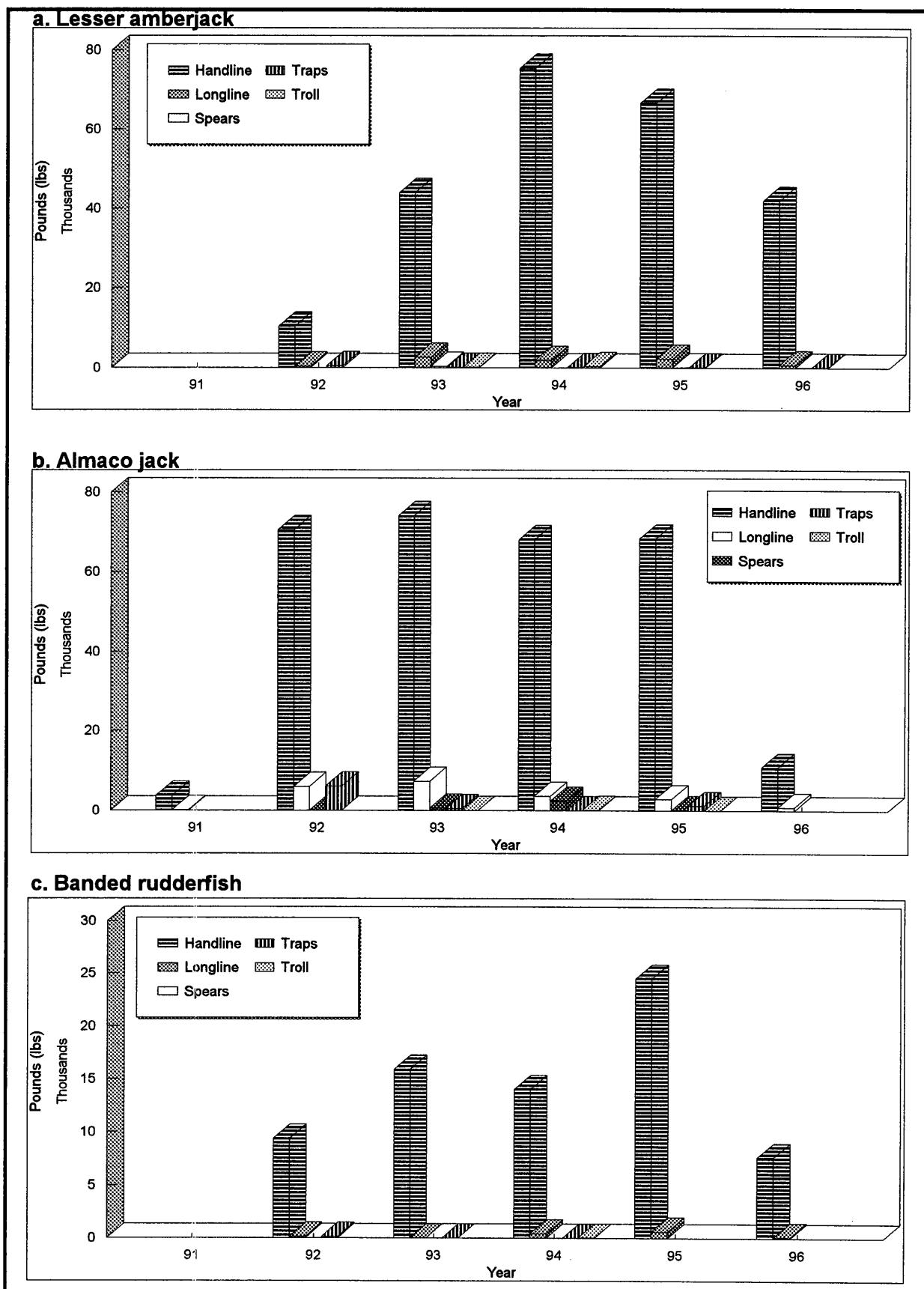


Figure 3. Estimated recreational catch for minor amberjack species in the Gulf of Mexico.

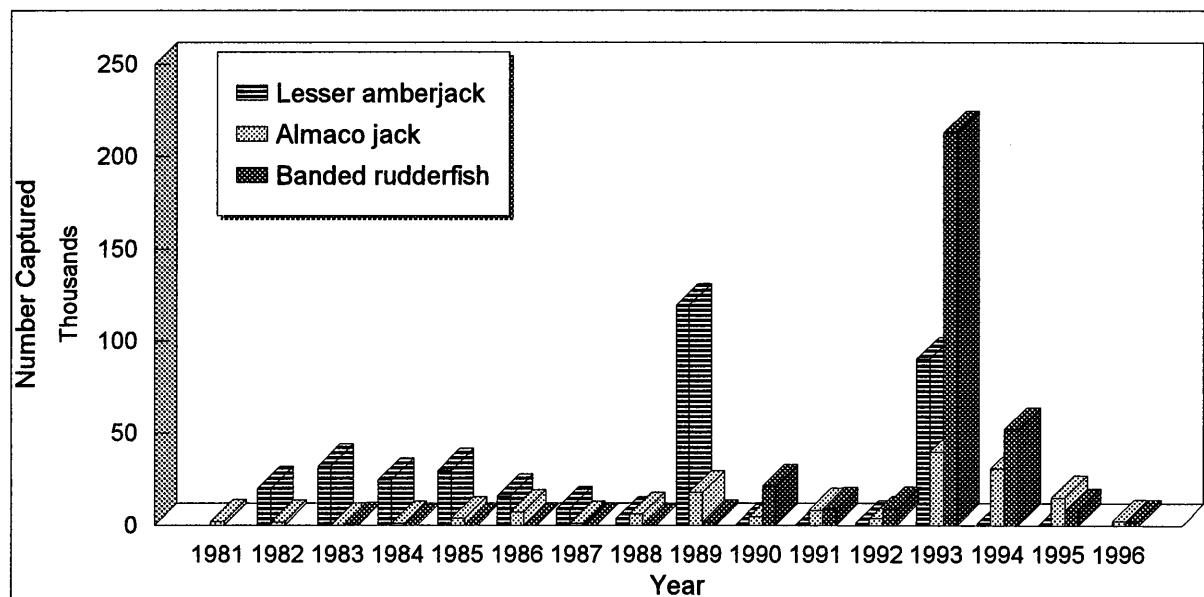
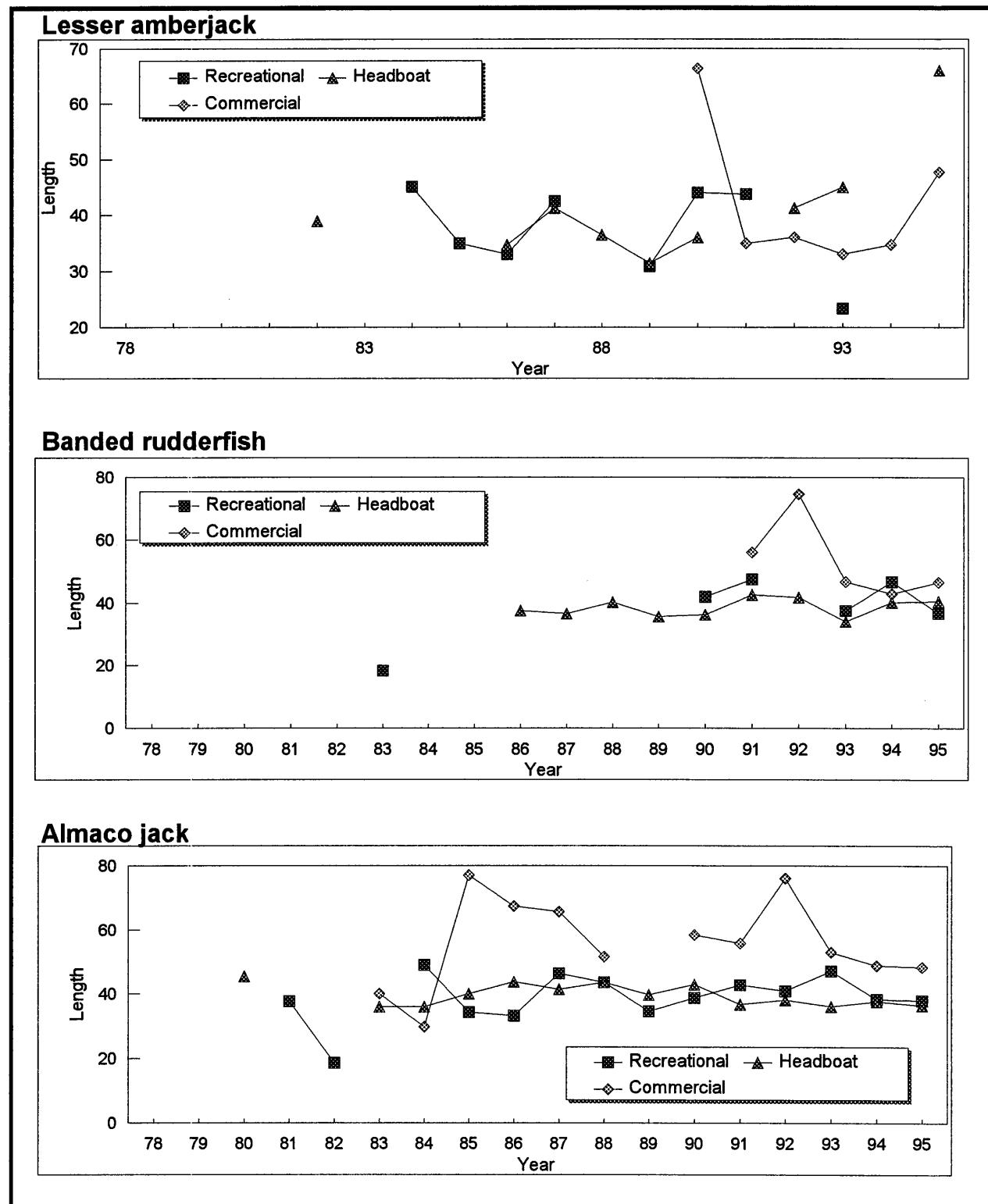
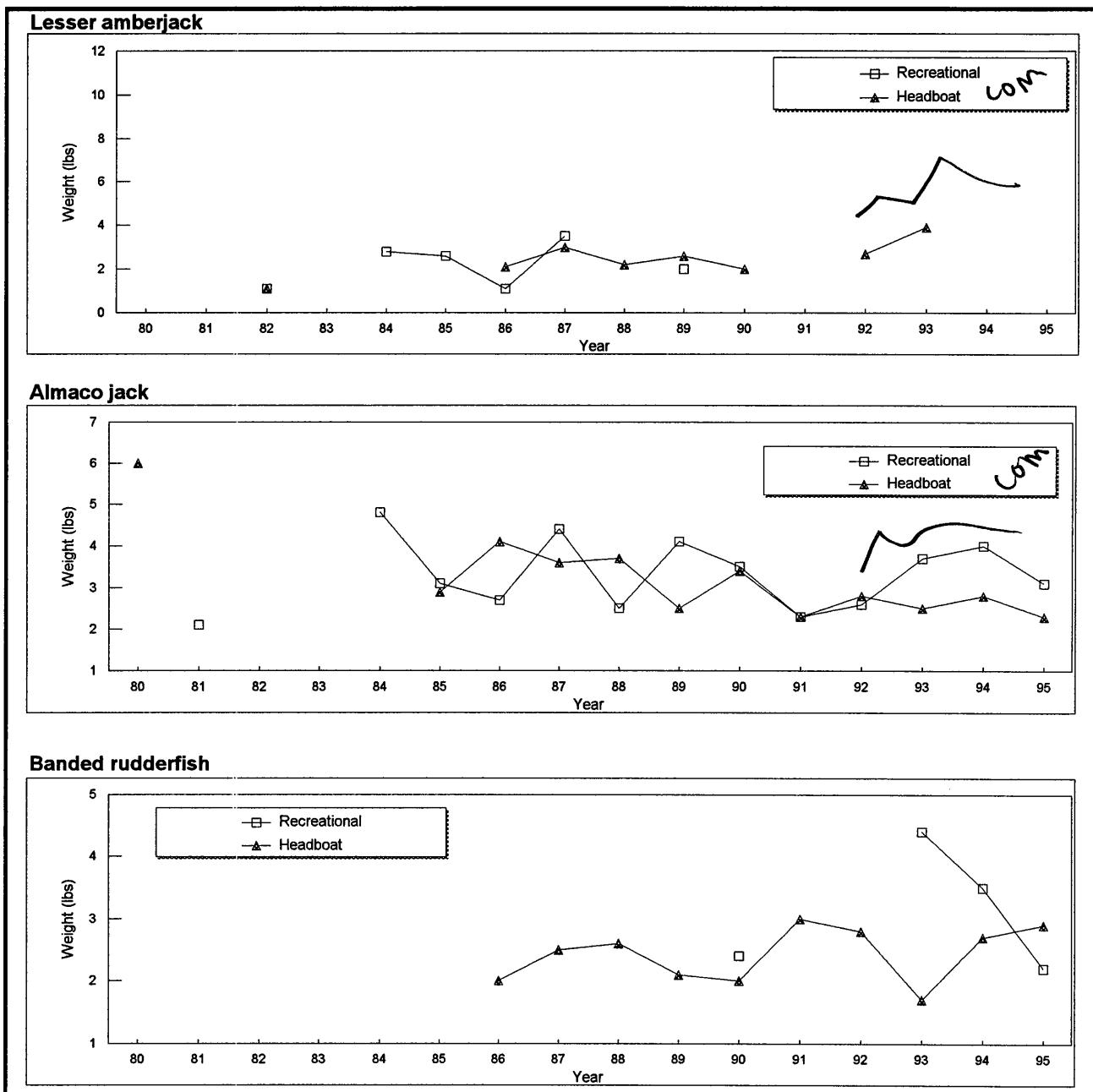


Figure 4. Observed mean length of the minor amberjack species in the Gulf of Mexico.



and went to big

Figure 5. Observed mean weight (lbs.) of the minor amberjack species in the Gulf of Mexico.



**Figure 6. Frequency distribution of length (cm) for minor species of amberjack caught in the Gulf of Mexico by fishery.**

**a. Lesser amberjack**

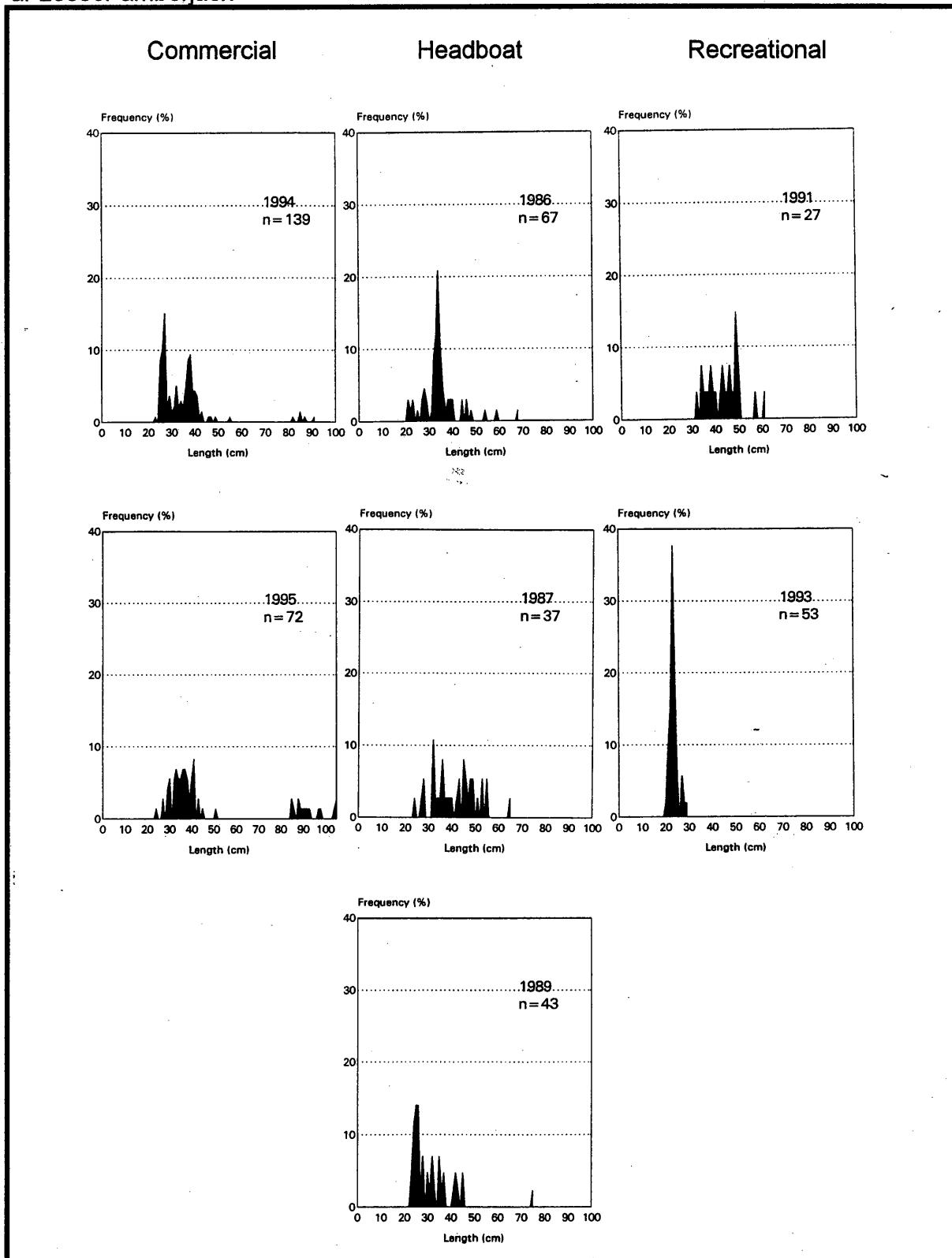


Figure 6 (cont.)

a. Banded rudderfish

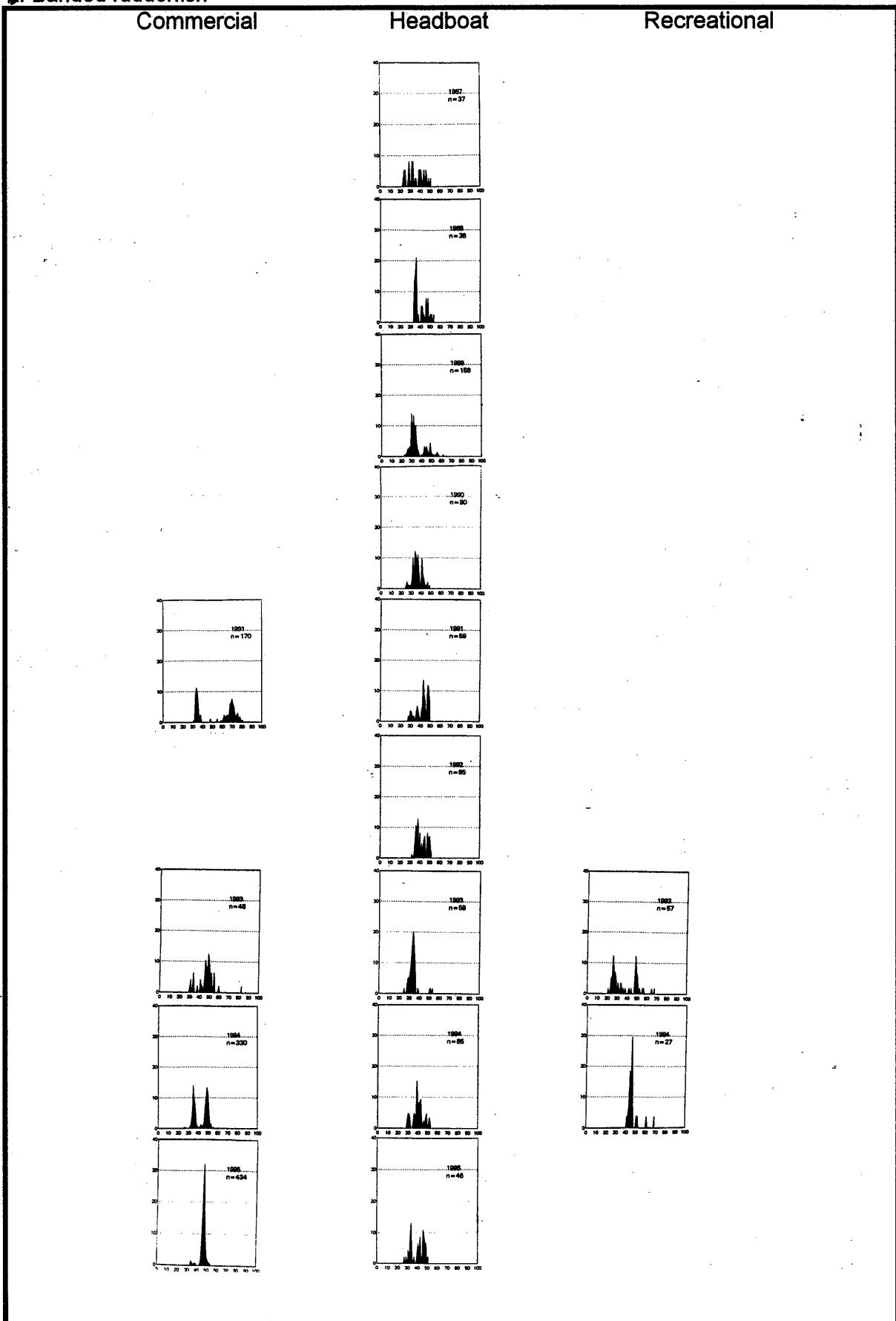
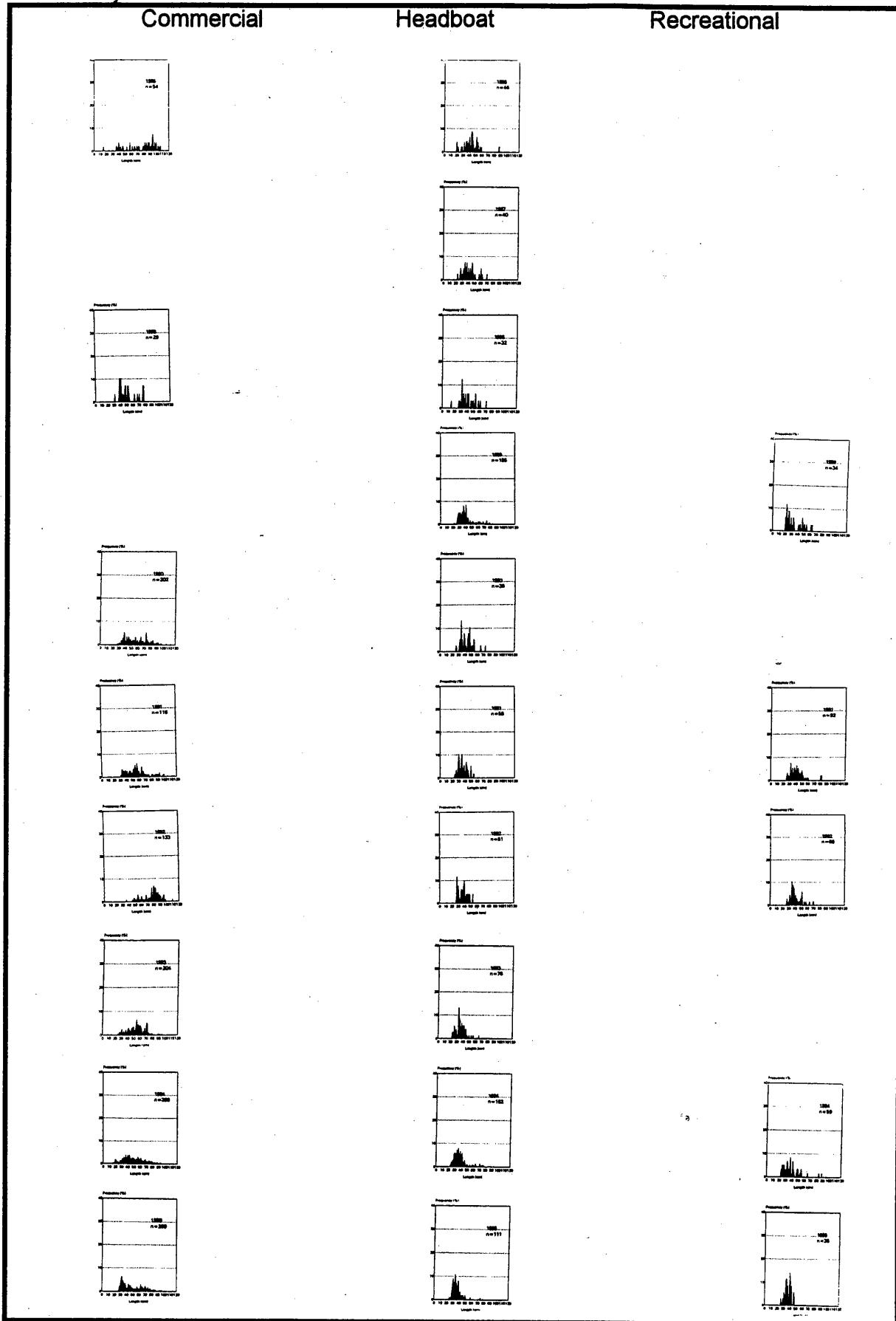


Figure 6 (cont.)

c. Almaco jack



**Figure 7.** Observed CPUE (lbs/trip) of the minor amberjack species from the Gulf of Mexico as reported from commercial logbooks. Spears (1992) and traps (1995) are omitted for almaco jack.

